

REMARKS

Claims 1-38, as amended, and new claims 42-46, are pending in this application. In this Response, Applicants have amended certain claims. In light of the Office Action, Applicants believe these amendments serve a useful clarification purpose, and are desirable for clarification purposes, independent of patentability. Accordingly, Applicants respectfully submit that the claim amendments do not limit the range of any permissible equivalents.

In particular, independent claims 1 and 31 and dependent claims 2-3, 7-10, 17-20, 28-31, 34-35, and 37-38 have been rewritten to further clarify the invention. New claims 42-45 recite additional embodiments of the invention fully supported in the Specification. As no new matter has been added by the amendments herein, Applicants respectfully request entry of these amendments at this time.

THE REJECTIONS UNDER 35 U.S.C. § 112

Claims 1-41 were rejected under 35 U.S.C. § 112 as being indefinite for the reasons stated on page 2 of the Office Action. While Applicants disagree that phrases “at least about” and “therebetween” render the claims vague or indefinite, claims 1-2, 7, 10, 19-20, and 31 have been rewritten to remove the language of concern to the Examiner to expedite allowance of this application. Claims 9, 17, 28, and 30 have been amended in a similar fashion to expedite allowance of this application.

In light of the amendments herein, Applicants respectfully submit that the § 112 rejections of claims 1-41 are moot.

THE REJECTIONS UNDER 35 U.S.C. § 103

Claims 1-3 and 7-30 were rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,713,801 to Aoyama in view of U.S. Patent No. 5,919,100 to Boehm *et al.* and Examiner Official Notice for the reasons stated on pages 2-7 of the Office Action. In addition, claims 4-6 were rejected under 35 U.S.C. § 103(a) as being obvious over the references applied in claim 1, and in further view of U.S. Patent No. 5,913,736 to Maehara *et al.* and U.S. Patent No. 4,938,471 to Nomura *et al.* for the reasons stated on pages 7-8 of the Office Action.

Aoyama is directed to a golf ball having a solid core, a wound layer, and a cover. *See, e.g.*, Col. 2, lines 41-48. As stated on page 3 of the Office Action, Aoyama does not disclose or suggest an encapsulating shell, a resilient elastomeric layer, or a binding material used to coat the windings. ✓

Boehm is directed to a golf ball having a fluid mass at the center of the ball, first and second non-wound layers, and a cover. *See* Abstract. Boehm is completely silent as to the requisite wound hoop-stress layer. In fact, Boehm teaches a solid-non-wound core portion made of at least a first, solid, non-wound layer 20 surrounding the fluid filled center and a second, solid, non-wound layer 22 surrounding the first layer 20. *See, e.g.*, Col. 7, lines 14-25 and 36-40. There is no disclosure or suggestion of a hoop-stress layer in Boehm's ball. ✓

Those of ordinary skill in the golf ball manufacturing art are aware of the many differences between non-wound construction balls and wound construction balls, some of which include the materials chosen for the golf ball components and the overall golf ball properties, such as initial velocity (or coefficient of restitution), elongation, and compression. For example, the function of the hoop-stress of the cover of a wound ball is not important because the wound center can be made lively enough, i.e., having a high velocity, on its own, whereas the hoop-stress of the cover of a non-wound ball is highly important to counter the marginal velocity of the inner components. *See, e.g.*, Aoyama, Col. 1, lines 11-23. Thus, while Boehm generally discloses a multilayer ball, it would not have been obvious at the time of the invention to use a reference excluding a hoop-stress layer, such as Boehm, to modify the layers disclosed by Aoyama and successfully achieve the present invention. Only the present invention provides this motivation, which is a classic case of hindsight. }

In addition, the independent claims presently recite a binding material that is used to coat the tensioned elastomeric strand to increase the cross-sectional area of the strand. Neither Aoyama, nor Boehm, disclose or even suggest such treatment to the strand(s) of the wound layer. The Examiner suggested that Boehm discloses suitable reactive liquids that are equivalent to the presently recited binding material. The reactive liquids disclosed by Boehm are clearly intended for use in the cavity 18 (Col. 9, lines 25-30) and Boehm does not even suggest these materials for use outside of the cavity 18. In light of the absence of a hoop-stress layer in Boehm, the reference is also completely silent as to using the material as a coating for the strand(s) of the hoop-stress layer. One of ordinary skill in the art would not have had any motivation to combine the Boehm cavity materials with the Aoyama wound layer to arrive at a coated strand without the present invention to use as a template. }

Not
clear
correctly

Maehara and Nomura have been cited in an attempt to cure the deficiencies of the primary references pertaining to claims 4-6. Maehara is directed to a golf ball with a shape memory alloy layer and Nomura is directed to winding techniques. Applicants respectfully submit that no combination of Maehara and Nomura is able to cure the deficiencies of the primary references.

*combine
reference ✓*

For at least the reasons above, Applicants respectfully request reconsideration and withdrawal thereof as to the rejections under 35 U.S.C. § 103 as to all the pending claims.

THE PROVISIONAL DOUBLE-PATENTING REJECTION

Claim 31 was provisionally rejected based upon U.S. Patent Application No. 09/842,829 under the judicially created doctrine of obviousness-type double patenting. Applicants submit herewith a Terminal Disclaimer in compliance with 37 CFR § 1.321(c). Thus, Applicants respectfully request reconsideration and withdrawal of the double patenting rejection.

CONCLUSION


All claims are believed to be in condition for allowance. If the Examiner believes that the present amendments still do not resolve all of the issues regarding patentability of the pending claims, Applicants invite the Examiner to contact the undersigned attorneys to discuss any remaining issues.

A Fee Sheet Transmittal is also submitted herewith to pay for the Terminal Disclaimer as required under 37 CFR § 1.20(d), as well as the additional independent and dependent claims added with this Response.

No other fees are believed to be due at this time. Should any fee be required, however, please charge such fee to Swidler Berlin Shereff Friedman, LLP Deposit Account No. 195127, Order No. 20002.0038.

Respectfully submitted,
SWIDLER BERLIN SHEREFF FRIEDMAN, LLP

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By: 
John P. Mulgrew, Registration No. 47,809
SWIDLER BERLIN SHEREFF FRIEDMAN, LLP
3000 K Street, NW, Suite 300
Washington, D.C. 20007
(202) 424-7500 Telephone
(202) 295-8478 Facsimile

APPENDIX A
MARKED UP VERSION OF AMENDED CLAIMS

Please amend the claims as follows:

1. (Amended) A golf ball comprising four or more layers, wherein one of the layers is a hoop-stress layer, comprising at least one material with a tensile elastic modulus of [at least] about 10,000 kpsi or greater, situated between two of three innermost layers, and wherein the at least one material is coated with a binding material prior to winding.
2. (Amended) The golf ball of claim 1, comprising the following layers:
 - a fluid-filled center;
 - an encapsulating shell comprising at least one layer to contain the fluid;
 - a hoop-stress layer comprising at least one material with a tensile elastic modulus of [at least] about 10,000 kpsi or greater disposed about [or within the] at least one layer of the encapsulating shell;
 - at least one layer comprising a resilient elastomeric component disposed about the hoop-stress layer; and
 - a cover comprising at least one layer and being disposed about the at least one layer including a resilient elastomeric component.
3. (Amended) The golf ball of claim 2, wherein the [hoop-stress layer] at least one material comprises a wire, thread, or filament.
7. (Amended) The golf ball of claim 2, wherein the at least one material forming the hoop-stress layer has a tensile elastic modulus of [at least] about 20,000 kpsi or greater.
8. (Amended) The golf ball of claim 3, wherein the wire, thread, or filament has a first cross-sectional area prior to coating [that is coated] with the [a] binding material [to create] and a second cross-sectional area greater than the first after coating.

9. (Amended) The golf ball of claim 2, wherein [at least one layer forming the encapsulating shell comprises two layers and the material forming] the hoop-stress layer is disposed [therebetween] between first and second layers of the encapsulating shell.

10. (Amended) The golf ball of claim 1, comprising the following layers:
a fluid-filled center;
an encapsulating shell comprising at least one layer to contain the fluid;
at least one layer comprising a first resilient elastomeric component;
a hoop-stress layer comprising at least one material with a tensile elastic modulus of [at least] about 10,000 kpsi or greater disposed about [or within] the at least one layer of the first resilient elastomeric component;
at least one layer comprising a second resilient elastomeric component disposed about the hoop-stress layer; and
a cover comprising at least one layer and being disposed about the at least one layer including a second resilient elastomeric component.

17. (Amended) The golf ball of claim 10, wherein the at least one material forming the hoop-stress layer has a tensile elastic modulus of [at least] about 20,000 kpsi or greater.

18. (Amended) The golf ball of claim 13, wherein the wire, thread, or filament has a first cross-sectional area prior to coating [that is coated] with the [a] binding material [to create] and a second cross-sectional area greater than the first after coating.

19. (Amended) The golf ball of claim 10, wherein [at least one layer comprising a first resilient elastomeric component comprises two layers and the at least one material forming] the hoop-stress layer is disposed [therebetween] between first and second layers comprising the first resilient elastomeric component.

20. (Amended) The golf ball of claim 1 comprising:
at least one core layer comprising a first resilient elastomeric component;

a hoop-stress layer comprising at least one fibrous material with a tensile elastic modulus of [at least] about 10,000 kpsi or greater wound about the at least one core layer;
at least one intermediate layer comprising a second resilient elastomeric component disposed about the hoop-stress layer; and
a cover comprising at least one layer and being disposed about the at least one intermediate layer.

28. (Amended) The golf ball of claim 20, wherein the at least one material forming the hoop-stress layer has a tensile elastic modulus of [at least] about 20,000 kpsi or greater.

29. (Amended) The golf ball of claim 13, wherein the wire, thread, or filament has a first cross-sectional area prior to coating [that is coated] with the [a] binding material [to create] and a second cross-sectional area greater than the first after coating.

30. (Amended) The golf ball of claim 20, wherein [at least one core layer comprising a first resilient elastomeric component comprises two layers and the at least one material forming] the hoop-stress layer is disposed [therebetween] between first and second core layers.

31. (Amended) A golf ball having four or more layers comprising:
a center;
a cover comprising at least one layer; and
a hoop-stress layer comprising at least one [material] strand with a tensile elastic modulus of [at least] about 10,000 kpsi or greater, situated between two of the three innermost layers], wherein the strand [material] has a first cross-sectional area and the strand [material] is coated with a binding material prior to winding to provide a coated [material] strand with a second cross-sectional area greater than the first by about 5 percent or more.

34. (Amended) The golf ball of claim 31, wherein the center has a diameter from about 0.5 inch to about 1.55 inches.

35. (Amended) The golf ball of claim 34, wherein the center has a diameter from about 1.1 inches to about 1.5 inches.

37. (Amended) The golf ball of claim 31, wherein the second cross-sectional area is about [5] 10 percent larger than the first cross-sectional area.

38. (Amended) The golf ball of claim 31, wherein the strand [hoop-stress layer] is [comprised of a] continuous [strand having] and has a diameter from about 0.004 to about 0.02 inches.

Please add the following new claims:

42. (New) The golf ball of claim 1, wherein the binding material is activated after winding.

43. (New) A golf ball comprising:
a core;
a hoop-stress layer comprising at least one strand having a first cross-sectional area;
a binding material applied to the at least one strand to increase the first cross-sectional area by about 5 percent or greater; and
a cover.

44. (New) The golf ball of claim 42, wherein the hoop-stress layer has a tensile elastic modulus of about 10,000 kpsi or greater.

45. (New) The golf ball of claim 42, wherein the binding material is activated to further increase the first cross-sectional area.

46. (New) The golf ball of claim 45, wherein the binding material is activated after winding.